



AF / Ito  
Docket No.: 80080(302721)  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Koichi Aizawa et al.

Application No.: 10/572,748

Confirmation No.: 3331

Filed: March 21, 2006

Art Unit: 2821

For: METHOD AND APPARATUS FOR  
MODIFYING OBJECT WITH ELECTRONS  
GENERATED FROM COLD CATHODE  
ELECTRON EMITTER

Examiner: D. H. Vu

REQUEST FOR RECONSIDERATION

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir/Madam:

In response to the Office Action dated March 9, 2010, Applicants respectfully request reconsideration of the prior act rejections listed below:

1. The 35 USC §103(a) rejection of claims 1, 3-11, 14 and 16-18 as unpatenable over Ito in view of Hatai et al. (both previously applied); and
2. The 35 USC §103(a) rejection of claims 1, 3-11, 14 and 16-18 as unpatenable over Tomoaki in view of Hatai et al.

As Applicants argued in their previous response, Ito discloses a micro vacuum pump capable of enhancing the performance of exhausting rare gases as well as active gases thereby to ensure quality, good repeatability and stable getter action of the micro vacuum pump over a long time. The micro vacuum pump capable of maintaining a high degree of vacuum includes a first conductive substrate having many protrusions and mounting a second conductive substrate disposed with a predetermined interval provided with respect to the first conductive substrate so

that it faces the protrusions. A gate electrode is disposed in the vicinity of the apexes of the protrusions on the first conductive substrate via an insulator layer, and is positioned to face the second conductive substrate. Relative to the first conductive substrate, a negative potential is supplied to the second conductive substrate, and, a same negative potential difference is also applied to the gate electrode relative to the cones.

Hatai et al. discloses a field-emission type electron source and a method of fabricating the same. As best understood from the disclosure, such electron source is used in a planar illumination source, a flat-display element, or solid-vacuum device. Applicants respectfully submit that Hatai et al. belongs to a non-analogous technical field separate and apart from the present invention, and does not teach, mention or suggest using such electron source for modifying an object, which is the subject matter of the present invention.

Thus, the teachings of Ito, directed to a micro vacuum pump, may not be combined with the teachings of Hatai et al., which is directed to the non-analogous art field of field-emissive type electron source and a method of fabricating the same, to teach the present invention in which the claims are directed to a method of modifying an object with electrons.

The Examiner has not been persuaded by this argument, noting that both Hatai et al. and Tomoaki are directed to an electron source, and that the claimed phrase “modifying an object with electrons” is mere intended use.

Applicants respectfully disagree.

It should be noted that the claims of the instant application are directed to a method for modifying an object with electrons, and the electric source of the present invention is a cold cathode electron emitter, which has a very high energy level. This is in contrast to the electron sources used in Hatai et al. and Tomoaki, which have much lower energy outputs than the cold cathode electron emitter claimed in the instant application, where Hatai et al. discloses a field-emission type electron source and Tomoaki discloses electronic sources such as “Metal-Insulator-Metal” and “Metal-Insulator-Semiconductor.” The method of the present invention of using a very high energy electron source to modify an object is not merely a combination of

known prior art devices, because only the cold cathode electron emitter of the present invention has energy great enough to emit electrons into the atmosphere to modify an object.

Thus, the 35 USC §103(a) rejections should be withdrawn.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

Dated: May 11, 2010

**CUSTOMER NO.: 21874**

Respectfully submitted,

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